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EXAMINER	
BRISTOL, LYNN ANNE	

ART UNIT	PAPER NUMBER
1643	

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/786,907	BOGEN ET AL.	
	Examiner	Art Unit	
	Lynn Bristol	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-82 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) 1-82 are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claim 1 is a linking claim for Groups I and II, which have been restricted on the basis of the reagent used in the treatment method. Accordingly, if Applicants elect Group I, then Claim 1 will be examined to the extent it reads on a method for treating myeloma or lymphoma with an antibody-based molecule, and if Group II is elected, Claim 1 will then be examined as reading on the method using a nucleic acid encoding the antibody-based molecule.

Similarly, the product claim, Claim 38, has been restricted on the basis of the product being an antibody-based molecule or a nucleic acid encoding the same.

Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 3-35, drawn to methods for treating myeloma or lymphoma comprising administering an antibody-based molecule comprising two targeting units and two antigenic units connected thru a dimerization motif, classified in class 424, subclass 136.1

II. Claims 2-37, drawn to methods for treating myeloma or lymphoma comprising administering a nucleic acid encoding an antibody-based molecule comprising two targeting units and two antigenic units connected thru a dimerization motif, classified in class 514, subclass 44.

III. Claims 38-71, 76 and 82, drawn to an antibody-based molecule comprising two targeting units and two antigenic units connected thru a

dimerization motif, classified in class 424, subclass 136.1 or classified in class 530, subclass 387.3.

IV. Claims 38-76 and 82, drawn to a nucleic acid encoding an antibody-based molecule comprising two targeting units and two antigenic units connected thru a dimerization motif; vectors comprising the nucleic acid; and vector comprising cell lines, classified in class 536, subclass 23.4.

V. Claim 77, drawn to methods for producing a recombinant antibody-based molecule comprising transfecting cells with a vector encoding the antibody-based molecule comprising two targeting units and two antigenic units connected thru a dimerization motif, expressing the protein and purifying the protein, classified in class 435, subclass 69.7.

VI. Claims 78-81, drawn to vaccine compositions comprising an antibody-based molecule comprising two targeting units and two antigenic units connected thru a dimerization motif encoded by a nucleic acid for triggering both a T-cell and B-cell immune response, classified in class 514, subclass 44.

3. Claim 1 links inventions for Groups I (methods of treating with an antibody-based molecule) and II (methods of treating with a nucleic acid encoding an antibody-based molecule). The restriction requirement among the linked inventions is subject to the nonallowance of the linking claim, claim 1. Upon the allowance of the linking claims, the restriction requirement as to the linked inventions shall be withdrawn and any claims depending from or otherwise including all the limitations of the allowable linking claims

will be entitled to examination in the instant application. Applicants are advised that if any such claims depending from or including all the limitations of the allowable linking claims is/are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or non-statutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-132 (CCPA 1971). See also MPEP § 804.01.

4. The inventions are separate and distinct for the following reasons:

The recombinant antibody-based molecules of Groups III and IV and the vaccine compositions of Group VI are related. The related inventions are distinct if the inventions as claimed do not overlap in scope, i.e., are mutually exclusive; the inventions as claimed are not obvious variants; and the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function or effect. See MPEP § 806.05(j). In the instant case, the polynucleotide claims for an antibody-based molecule encoded by a "nucleic acid" do not overlap the scope of the polypeptide claims for an antibody-based molecule and vice versa as evidenced by the distinct structures and functions of the claimed inventions. Similarly, the vaccine composition claims for a "nucleic acid" encoding an antibody-based molecule do not overlap the scope of the polynucleotide claims or the polypeptide claims and vice versa.

A polynucleotide structure is comprised of linear, contiguous nucleotides while a polypeptide's structure is comprised of linear, contiguous amino acids that fold into a specific three-dimensional structure; the polynucleotide's function is to encode a protein while a polypeptide's function is variable, and in this case, highly variable as a result of the multiplicity of combinations for the binding and targeting units of the molecule. Additionally, the polynucleotides and polypeptides are not obvious variants of each other based on the distinct structures and functions of each as noted above. The vaccine composition comprises the polynucleotide in addition to other components at immunologically effective concentrations that are required to induce both a T- and B-cell immune response against a cancer or an infectious disease. Lastly, the polynucleotides, polypeptides and the vaccines have materially different functions as noted above.

Because these inventions are distinct for the reasons given above and the search required for any one of Groups III, IV or VI is not required for the other, restriction for examination purposes as indicated is proper. Groups III, IV and VI are classified under different U.S. Patent Classification guidelines, and to search them together would present a search burden on the Examiner due to the extensive databases of non-patent literature. For example, claims in Group III, drawn to polypeptides, must be searched not only in commercial amino acid sequence databases, but also in textual databases because isolated polypeptides are often disclosed without the benefit of sequence information although the amino acid sequence is inherently the same as the sequence claimed. Additionally, the polynucleotide sequences must be searched in distinct nucleic acid sequence

commercial databases. Thus, Groups III, IV and VI have been appropriately restricted on the basis of being both independent or distinct and presenting a search burden on the Examiner if they were to be searched together.

5. The methods of Groups I, II and V differ in the method objectives, method steps and parameters, intended populations and in the reagents used. The methods differ as follows: Group I requires administering a recombinant antibody-based molecule comprising two targeting units and two antigenic units connected thru a dimerization motif to a patient in order to treat multiple myeloma or lymphoma; Group II requires administering a "nucleic acid" encoding a recombinant antibody-based molecule comprising two targeting units and two antigenic units connected thru a dimerization motif to a patient in order to treat multiple myeloma or lymphoma; and Group V requires transfecting cells with a vector encoding the antibody-based molecule comprising two targeting units and two antigenic units connected thru a dimerization motif, and expressing the protein in order to purify the protein. Groups I, II and V are classified under different U.S. Patent Classification guidelines, and to search them together would present a search burden on the Examiner due to the extensive databases of non-patent literature. Thus, the examination of all groups would require different searches in the U.S. PATENT shoes and the scientific literature and would require the consideration of different patentability issues. Inventions of Groups I, II and V are separate and distinct in having different method steps and different endpoints and are patentably distinct.

6. Inventions of Groups I and III; Groups II and IV are related as product and process of use. The inventions can be shown to be distinct if either or both of the

following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case, the process of treating multiple myeloma or lymphoma can be practiced with another materially different product such as chemotherapy, or anti-cancer drugs, interferon-alpha, thalidomide, "antisense" agents, etc. As for the polynucleolotide product, the "nucleic acid" encoding the recombinant antibody-based molecule can be used in hybridization assays. As for the polypeptide product, the recombinant antibody-based molecule can be used in immunoassays to detect hybrid or bispecific antibodies directed against the different targeting units or antigenic units, or to identify and purify natural ligands for any one or all of the units. Thus, the examination of all groups would require different searches in the U.S. PATENT shoes and the scientific literature and would require the consideration of different patentability issues. Inventions of Groups I and III; Groups II and IV are separate and distinct in having different method steps and different endpoints and are patentably distinct.

7. Inventions of Groups V and IV are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product (recombinant antibody-based molecule) can be made by synthetic processes in addition to another and materially different process. As for the process, other and materially different

products could be produced such as recombinant growth factors, cytokines, etc. Thus, the examination of Groups V and IV would require different searches in the U.S. PATENT shoes and the scientific literature and would require the consideration of different patentability issues.

8. Inventions of Groups V and IV are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case, the product (host cells transfected with a vector encoding an antibody-based molecule) can be used to screen for or purify binding targets specific for the targeting units of the molecule in addition to a materially different process. As for the process, other products could be expressed for purification that are otherwise produced by normal cells or hybridomas. Thus, the examination of Groups V and IV would require different searches in the U.S. PATENT shoes and the scientific literature and would require the consideration of different patentability issues.

9. Inventions of Groups V and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product (antibody-based molecule) can be made by synthetic processes, and as for the process, other materially

different products could be produced such as recombinant growth factors, cytokines, etc. Thus, the examination of Groups V and III would require different searches in the U.S. PATENT shoes and the scientific literature and would require the consideration of different patentability issues.

10. Because these inventions are distinct for the reasons given above, restriction for examination purposes as indicated is proper. In addition to their distinctness, searching the inventions of Groups I-VI together would impose a serious search burden. In the instant case the searches are not coextensive. For example, the inventions have acquired a separate status in the art because of their recognized divergent subject matter and different searches in the patent literature.

11. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

12. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Election of Species

13. **Targeting Units**

A) If any one of Groups I-VI is elected, then Applicant is requested to elect the two targeting units from the species below. This application contains claims directed to the following patentably distinct species of the claimed invention:

Specie A) single chain fragment variable of Ig (scFv)

Specie B) ligand

Specie C) bacterial antigen

Species A-C are different molecules, which do not share a common utility nor do they have a substantial structural feature common amongst them. One of ordinary skill in the art could readily consult any reference manual describing the structure, biological properties, cellular targets, disease correlates and cellular signal properties for each of the species, and would appreciate that based on these reference disclosures alone or in combination, that these species are distinct and separate. The species are not obvious variants or overlapping, thus to search the species together would present a search burden on the Examiner due to the extensive databases of non-patent literature and because searching the databases is not co-extensive.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claims 1, 38, 77 and 78 is generic as to Species A-C.

B) If a single chain fragment variable of Ig (scFv) for any one or two of the targeting units of any one of Groups I-IV is elected, then Applicant is requested to elect from the subspecies below. This application contains claims directed to the following patentably distinct subspecies of the claimed invention:

Specie A) anti-HLA

Specie B) anti-CD14

Specie C) anti-CD40

Specie D) anti-toll-like receptor

Species A-D are different scFv molecules, which do not share a common utility nor do they have a substantial structural feature common amongst them. Each of the scFvs is recognized as being directed to different CD antigens (i.e., different cognate ligands) on different cell types and having different signal interactions, and having different amino acid structures. For example, any commercial Table of CD antigens lists this information. The species are not obvious variants or overlapping, thus to search the species together would present a search burden on the Examiner due to the extensive databases of non-patent literature and because searching the databases is not co-extensive.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claims 1, 38, 77 and 78 is generic as to Species A-D.

C) If a ligand for any one or two of the targeting units of any one of Groups I-IV is elected, then Applicant is requested to elect from the subspecies below. This application contains claims directed to the following patentably distinct subspecies of the claimed invention:

Specie A) soluble CD40 ligand

Specie B) chemokine

The species A and B do not share a common utility nor do they have a substantial structural feature common amongst them. Soluble CD40 ligand is CD antigen, CD154, whereas a chemokine may comprise any number of soluble immune response modifiers, which specifically exclude CD 154, and which one of ordinary skill in the art could readily determine by consulting a general textbook of immunology. The species are not obvious variants or overlapping, thus to search the species together would present a search burden on the Examiner due to the extensive databases of non-patent literature and because searching the databases is not co-extensive.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claims 1, 38, 77 and 78 is generic as to Species A and B.

D) If a chemokine for any one or two of the targeting units of any one of Groups I-IV is elected, then Applicant is requested to elect from the subspecies below. This application contains claims directed to the following patentably distinct subspecies of the claimed invention:

Specie A) RANTES

Specie B) MIP-1α

Species A and B do not share a common utility nor do they have a substantial structural feature common amongst them. One of ordinary skill in the art could readily consult any reference manual describing the structure, biological properties, cellular targets, disease correlates and cellular signal properties for each of the species, and would appreciate that based on these reference disclosures alone or in combination, that these species are distinct and separate. The species are not obvious variants or overlapping, thus to search the species together would present a search burden on the Examiner due to the extensive databases of non-patent literature and because searching the databases is not co-extensive.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claims 1, 38, 77 and 78 is generic as to Species A and B.

14. **Antigenic units**

A) If any one of Groups I-VI is elected, then Applicant is requested to elect the two antigenic units from the species below. This application contains claims directed to the following patentably distinct species of the claimed invention:

Specie A) antigenic scFv

Specie B) telomerase

Specie C) bacterium

Specie D) virus

Species A-D do not share a common utility nor do they have a substantial structural feature common amongst them. One of ordinary skill in the art could readily consult any reference manual describing the structure, biological properties, cellular targets, disease correlates and cellular signal properties for each of the species, and would appreciate that based on these reference disclosures alone or in combination, that these species are distinct and separate. The species are not obvious variants or overlapping, thus to search the species together would present a search burden on the Examiner due to the extensive databases of non-patent literature and because searching the databases is not co-extensive.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claims 1, 38, 77 and 78 is generic as to Species A-D.

15. **Vaccine composition**

A) If any one of Groups I-VI is elected, then Applicant is requested to elect the species below. This application contains claims directed to the following patentably distinct species of the claimed invention:

Specie A) cancer

Specie B) infectious disease

The species A and B do not share a common utility nor do they have a substantial structural feature common amongst them. Each of the disorders: has a different etiology; involves a different arm of the immune response (e.g., humoral and/or cellular); has a different clinical course and outcome(s) that are influenced by endogenous autocrine and paracrine effects of cytokines, growth factors, hormones, etc.; and each disorder is recognized as being managed by different therapeutic approaches. One could consult any medical textbook to appreciate the different evaluation, clinical work-up and recommended clinical management for each of these separate and distinct disorders. The species are not obvious variants or overlapping, thus to search the species together would present a search burden on the Examiner due to the extensive databases of non-patent literature and because searching the databases is not co-extensive.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claims 1, 38, 77 and 78 is generic as to Species A and B.

B) If an infectious disease of any one of Groups I-IV is elected, then Applicant is requested to elect from the subspecies below. This application contains claims directed to the following patentably distinct subspecies of the claimed invention:

Specie A) AIDS

Specie B) tuberculosis

See the interpretation of the species under section 14.B., supra, as it applies to these subspecies.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claims 1, 38, 77 and 78 is generic as to Species A and B.

16. Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynn Bristol whose telephone number is 571-272-6883. The examiner can normally be reached on 8:00-4:00, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Helms can be reached on 571-272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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